

# Stories in the Sky



# Overview

**Objective** – Examine the idea that constellations and star patterns exist in the sky and represent certain ideas.

**Age Range** – This activity is designed for younger, elementary and middle school aged children.

**Materials Needed** – Worksheet (provided); copy machine to make copies; colored pencils, crayons, and/or markers; star stickers (optional); instructions on how to create your own planetarium (provided); pens or sharp pencils to poke star patterns into the walls of the homemade planetarium; flashlight for reading stories inside the planetarium; materials to create your own planetarium. Please see the DVD for a short video on how to assemble the planetarium:

- “4 mil” black plastic sheeting (thinner material lets too much light through) - size will vary depending on size of space and group (20ft x 50ft for a large group)
- 1 large roll of duct tape
- 1 large black plastic trash bag (to fit over fan)
- 1 window or floor level fan with extension cord

**Set Up** – Follow the instructions and make the planetarium, setting it up in a quiet space and near to an electrical outlet to plug in the fan. Mimicking a traditional Hogan, place the planetarium so the entrance faces East. Set up one or two tables with chairs nearby. Make the appropriate number of copies of the worksheet, with extras for kids to start over if necessary. Spread the worksheets and crayons around the tables so kids can have easy access to them.

**Estimated Time** – 30 – 45 minutes; approximately one full or two half class periods if used in a classroom.

**Facilitator or Teacher Pre-Work** - A few facilitators are necessary for this activity – some to work with the kids who are drawing, some to assist poking the star patterns/constellations into the planetarium walls, and some to manage the activity in the planetarium. Involve teachers, older students, parents! This activity does NOT have to include the planetarium; it can consist only of creating the star pattern and writing a short description of it.

## How To

**Guidelines for Facilitating the Activity** – Assemble a group and ask what they know about constellations. Ask what a constellation is and if they can name some constellations (Constellations are specific groupings of stars designated and named by the International Astronomical Union, IAU; all other groups of stars the sky are known as star patterns.). Ask if they ever thought about creating their very own star pattern/constellation. Present them with a worksheet and crayons. It may be useful to limit them to six or seven stars. If using star stickers, have them work out their pattern first with a pencil, then give each person only the stickers they need.

By asking about their lives (where they live, who are the important people in their life, important activities or hobbies they have), provide some suggestions of possible patterns they can create such as a Hogan, a Pinon Pine tree, a mountain, a coyote or other local animal, or something or someone special in their lives. As they create their star pattern, assistance may need to be given as to where to place stars on the object they draw so the stars successfully form its outline. As they're drawing, help them articulate why the object they've chosen is meaningful.

On the lines provided on the worksheet, have (or help) each person write a short, descriptive story explaining the significance of their star pattern/constellation, and why they chose it. They can use the back of the sheet if necessary.

The facilitator then leads each person or group into to the planetarium where they will poke holes representing each new star pattern/constellation into the plastic walls with a ballpoint pen or sharp pencil. Reserve the overhead "dome" of the planetarium if the Story Time activity is also being conducted. Place the worksheet on the plastic wall of the planetarium. Poke a hole through each star-point on the paper. Each hole is one star in their constellation. Assistance may need to be given poking holes in the plastic.

If working in a classroom, assemble the class or small groups inside the planetarium when all the star patterns/constellations are complete. One by one, have each person tell their story. Other students can try to guess what they are. If working in a Community Event, work in small groups to read the stories aloud. Worksheets can be collected for display, and then taken home.

## Background

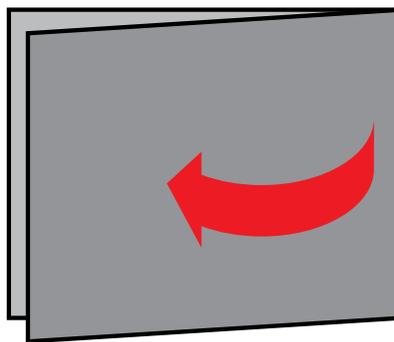
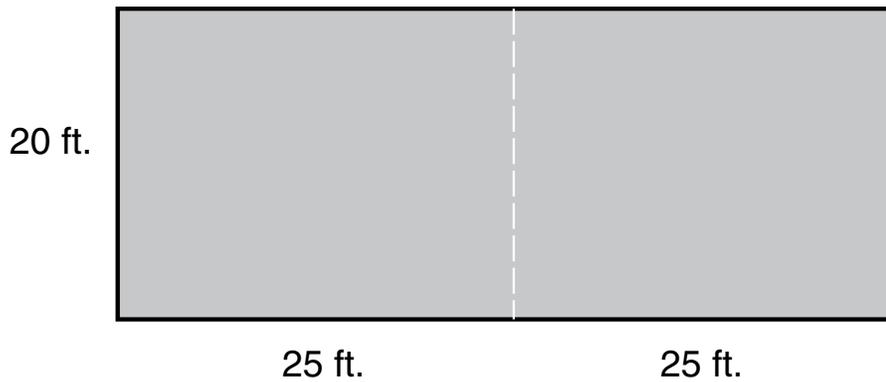
***How to assemble and use the planetarium*** - please see the DVD for a short video on how to assemble the planetarium.

### Construction of the Planetarium

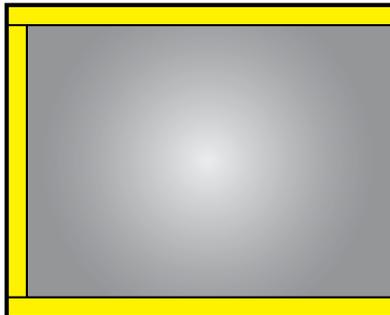
1. Open the roll of black plastic, unroll the plastic and unfold until the full size is lying on the ground. This will take a big space, perhaps a clean space outside. The ground needs to be smooth and level underneath.



2. Take the corners and fold the plastic in half the long way.



3. Tape the “open sides” with duct tape being sure to roll the two plastic sheets together a little so that there will be no “light gaps.”



### Building the Dome Inflation System

4. Using scissors, opposite from the end that will have the entrance/exit, cut a hole that is the size of the open end of the trash bag.
5. Cut the bottom out of the trash bag, insert it in the hole in the planetarium and duct tape it to the plastic of the planetarium.
6. In the same way, insert the unplugged fan in the other end of the trash bag and duct tape them together so that the air from the fan blows through the trash bag tube into the planetarium.

7. Now plug in the fan and the planetarium will inflate.

### **Building the Entrance/Exit**

8. Access to the planetarium may be accomplished by a simple slit made with scissors or the creation of more elaborate cardboard doors with duct tape hinges. An entrance and exit opening separated by a few feet is advised. In an emergency, open up a side with scissors for an exit.
9. Carpet on the bottom of the planetarium will prevent slipping on the plastic.

### **Job Descriptions When Running the Planetarium (3 persons total at all times)**

One supervisor inside the planetarium to monitor behavior and the total number of people inside, help with hole punching, and use flashlight to guide walking and viewing. In case of electrical failure, this person will guide participants out of the planetarium. The dome will remain inflated for several minutes allowing for orderly exit through the normal doors but the plastic can easily be cut with scissors for emergency exiting. Large cuts will deflate the dome more rapidly.

One exterior manager to help people in and out of the planetarium from the outside.

One materials manager to supervise the fan, electricity and general condition of the planetarium (generally from the outside). The fan may require continuous management. Begin inflation with the fan on a high setting. After a bit, the dome will be over-inflated. Turn the fan setting down to medium to allow it to deflate so people can access the entrance. When the entrance is open and people are entering, the dome will deflate slightly. Turn the fan back onto a high setting to re-inflate. Turn the fan setting up or down to monitor the size of the dome while people are inside. The dome will deflate slightly as people begin to exit. Wait until the dome is re-inflated sufficiently to allow the next group inside.

### **Safety Notes**

Although the interior volume is large and it does not get completely dark inside, facilitators should be aware of signs of claustrophobia or unease.

At no time should an open flame be allowed anywhere inside or near the outside of the planetarium.

## **Graphics**

The following page contains the included graphic for this activity: a black line master of the worksheet to be photocopied for using during the activity.



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